THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 11

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte JEFFREY E. KOELLING and CHING-YUH TSAY

_____

Appeal No. 1997-0274
Application No. 08/266,912[1]

_____

ON BRIEF

_____

Before KRASS, FLEMING, and DIXON, **Administrative Patent Judges**.

DIXON, **Administrative Patent Judge**.

DECISION ON APPEAL

This is a decision on appeal from the Examiner's final rejection[2] of claims 1-5, which are all of the claims pending in this application.

We REVERSE.

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[1] Application for patent filed June 27, 1994.

[2] In the Examiner's answer, page 3, the Examiner has withdrawn the rejection of claims 1-5 under 35 U.S.C. § 112, second paragraph and the rejection of claims 1-5 under 35 U.S.C. § 102 as being unpatentable over Kumanoya in view of the arguments presented in the Brief.

BACKGROUND

The appellants' invention relates to a bias pump arrangement including a signal-transistion-detection circuit. An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced below.

Claim 1. A circuit comprising:

> a charge pumping circuit, responsive to a signal having high and low levels on a lead, for alternately storing charge in a pumping capacitor and transferring the stored charge from the pumping capacitor to a load;
>
> a terminal for receiving an input signal having negative-going and positive-going transitions;
>
> a first signal-transition-detection circuit, responsive to the negative-going input signal transitions on the terminal, for producing and applying to the lead of the charge pumping circuit a full-cycle signal having high and low levels for each negative-going input signal transition; and
>
> the first signal-transition-detection circuit, further responsive to the positive-going input signal transitions on the terminal, for producing and applying to the lead of the charge pumping circuit a full-cycle signal having high and low levels for each positive-going input signal transition.

The prior art references[3] of record relied upon by the Examiner in rejecting the appealed claims are:

[3] The Examiner has cited U.S. Patent 5,047,659 to Ullrich as evidence, but did not include this reference in the rejection applied against claims 1-5.

Ito	5,029,282	Jul. 02, 1991
Tatsumi	5,297,179	Mar. 22, 1994

Claims 1-5 stand rejected under 35 U.S.C. § 103 as being unpatentable over Ito in view of Tatsumi.

Rather than reiterate the conflicting viewpoints advanced by the Examiner and the appellants regarding the above-noted rejections, we make reference to the Examiner's answer (Paper No. 10, mailed Jul. 25, 1996) for the Examiner's complete reasoning in support of the rejections and to the appellants' brief (Paper No. 9, filed Jun. 7, 1996) for the appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by the appellants and the Examiner. As a consequence of our review, we make the determinations which follow.

Appellants argue that each of the prior art references fails to disclose the invention as claimed. (See brief at page 9.) While we agree with appellants that neither reference individually teaches nor suggests the invention as set forth in claim 1, the Examiner has set forth the rejection under 35 U.S.C. § 103 over the combination of

two prior art references. Appellants argue that "[n]one of the specifics of applicants' claims 1-5 are mentioned in the Ito patent." (See brief at page 9.) We disagree with appellants. Ito teaches a voltage regulation circuit for use with an integrated circuit. The voltage regulator has a charge pump circuit, 2, having high and low levels on a lead, for alternately storing charge to pumping or boosting capacitors 'C' (See Ito at Figure 1 and col. 2-3) and transferring the stored charge to a load (EPROM or EEPROM). (See Ito at col. 5-6.) Ito also discloses an enable terminal for receiving an input signal having negative and positive going transitions and an output terminal for V_{out}. Appellants argue that Ito does not teach or suggest having a clock doubling circuit which detects a signal transition and generates a full cycle signal having high and low levels for each positive and each negative transition. (See brief at page 9.) We agree with appellants. The Examiner relies upon the teachings of Tatsumi to teach the transition detection and providing a full cycle for each of the positive and negative transitions. (See answer at page 4.) Appellants argue that Tatsumi "fails to disclose the first signal-transition-detection circuit . . . for producing and applying to the lead of a charge pumping circuit a full -cycle signal." (See brief at page 9.) While we agree with appellants that Tatsumi does not provide a full cycle to the input terminal of a charge

pump circuit for each transition, Tatsumi clearly teaches a basic clock doubling circuit which provides a full cycle signal for each transition from low to high and high to low. (See Tatsumi at Figure 3.)

In rejecting claims under 35 U.S.C. § 103, the Examiner bears the initial burden of presenting a ***prima facie*** case of obviousness. **See In re Rijckaert**, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). A ***prima facie*** case of obviousness is established by presenting evidence that the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the references before him to make the proposed combination or other modification. **See In re Lintner**, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972). Furthermore, the conclusion that the claimed subject matter is ***prima facie*** obvious must be supported by evidence, as shown by some objective teaching in the prior art or by knowledge generally available to one of ordinary skill in the art that would have led that individual to combine the relevant teachings of the references to arrive at the claimed invention. ***See*** **In re Fine**, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

The Examiner states that “it would have been obvious for one skilled in the art to add the doubling circuit of Tatsumi between the oscillator signal (within OSC) and the

charge pump of Ito to obtain the expected result of providing a regulated signal with a variable duty cycle thereto." (See answer at page 4.) The Examiner further embellishes the above motivation statement by stating that the modification would provide "a combination having the expected additive result of a highly regulated clock signal with variable duty cycle being provided to the charge pump. Such advantage will provide greater control and stability of the level of the voltage provided at Vout" (See answer at page 5.) (Emphasis added.) Appellants argue that the Examiner has not provided a "teaching or even a suggestion in either the Ito patent or the Tatsumi patent to combine them into applicants' advantageous combination." (See brief at page 9.) Appellants further argue the lack of an adequate motivation to combine the references. Appellants argue that no reasonable suggestion exists in the prior art to point the way to the modification as set forth by the Examiner. (See brief at page 8.) We agree with appellants that the prior art references do not disclose or suggest an adequate motivation to combine the teachings.

Appellants argue that "their claimed arrangement does not just 'merely' increase the frequency, but it takes advantage of the insight that the one capacitor of the single charge pumping circuit can be operated more effectively in response to the selected

signal without increasing the capacitance of and therefor the size of the capacitor." (See brief at pages 5-6.) Clearly, the individual prior art references applied by the Examiner have not recognized this advantage nor has the Examiner set forth a line of reasoning for the combination to have recognized an advantage. The mere fact that the skilled artisan would achieve the "additive result" does not make it ***prima facie*** obvious to combine the teachings as the Examiner asserts. Some motivation to achieve this additive result must be in the prior art or from the common sense or from known engineering knowledge.

The prior art references are silent with respect to the details of the oscillator or the speed of operation. Moreover, the Examiner has not set forth any additional rationale beyond the mere conclusion that the combination would have been obvious and that the additive result would have been achieved. The Examiner did not set forth any additional line of reasoning such as the relationship between frequency and size of capacitance, the desire to read/write at a faster rate to increase clock speed or the cost of increasing the speed of the clock as a consideration by the skilled artisan. Therefore, the Examiner has not set forth a ***prima facie*** case of obviousness. Therefore, we will not sustain the rejection of claims 1-5.

CONCLUSION

To summarize, the decision of the Examiner to reject claim 1-5 under 35 U.S.C. § 103 is reversed.

REVERSED

ERROL A. KRASS Administrative Patent Judge	)))))) BOARD OF PATENT
MICHAEL R. FLEMING Administrative Patent Judge	) APPEALS) AND) INTERFERENCES
JOSEPH L. DIXON Administrative Patent Judge	))))

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